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# Evaluation of an RCT web-based intervention for adherence in cystic fibrosis

White H<sup>1,2</sup>, Shaw N,<sup>3</sup> Gillgrass L, Wood A,<sup>3</sup> Chadwick H,<sup>2</sup> Peckham DG.<sup>2,3</sup> Leeds Beckett University,<sup>1</sup> University Leeds,<sup>2</sup> Adult Cystic Fibrosis Unit (Leeds Teaching Hospitals Trust) Leeds, UK<sup>3</sup>



#### **Presenter Disclosure**

#### **Helen White PhD**

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- UKCRN Portfolio ID 13624



### **Background**

- Reported adherence rates in CF are as low as 40-50%
- In our own adult patient (n = 410) adherence is 63% (medication possession ratio) White et al (2017)
- On-line adherence programmes for adults with CF have not yet been fully evaluated
- We aimed to determine the impact on adherence of a webbased intervention for adults with CF



## Phase 1 (Module development)

- 6 on-line modules developed
- 40 video stories filmed and embedded within all giving reasons to change and motivations to take treatment eg
  - Parenthood
  - Further study
  - Availability for new treatments





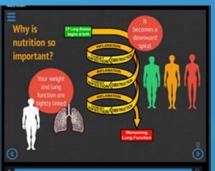




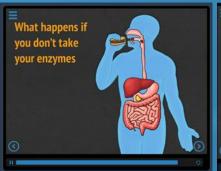
## Development

- Interactive material
- Integrated 'drag and drop', games, quiz
  - Nutrition
  - Pancreatic enzyme replacement therapy
  - Vitamins

  - Antibiotics
  - Liver disease

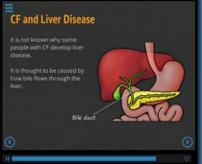














# 2<sup>nd</sup> phase - RCT design

- Usual care or web-based intervention (n=100)
- Participants issued with tablet technology
- Granted structured access over 12 months
- Modules released at intervals
- Access tracked on-line
- Facility to gather participant feedback on the system





#### Results

- Data collected at baseline, 6 months and 1 year
  - Adherence (Medication possession ratio)\*
  - Knowledge questionnaire\*
  - QoL (CFQ-R)\*
  - Anthropometric data
  - Respiratory function [FEV<sub>1</sub>(%), FVC(%), FEV<sub>1</sub> rate of decline (% )and coefficient variation FEV<sub>1</sub> (%)
  - Fat soluble vitamin status

\* Collected at baseline and 1 year only

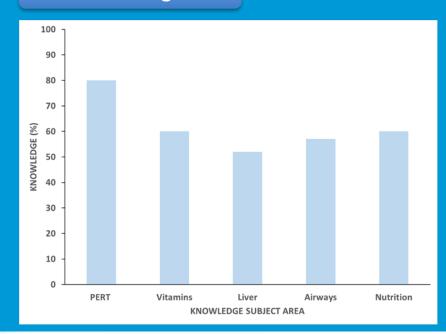


## **Interim results**

#### Baseline

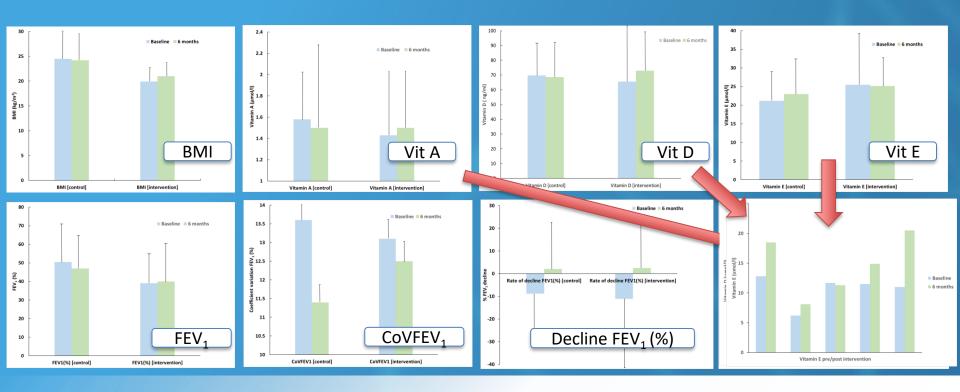
N=100 Reporting interim data n=60	Intervention n=31	Control n=29	P-value
Gender (male)	16 (51.6%)	15 (51.7%)	NS
Age (years)	27.0	30.6	P=0.51
Pseudomonas	67.7%	62%	P=0.79
CFRD (%)	12 (38.7%)	13 (44.8%)	P=0.028
Genotype DF508/DF508 (%)	18 (58.1%)	18 (64.3%)	P=0.61
FEV <sub>1</sub> (%)	39% (±17.5)	50.4% (±21.2)	P=0.028
BMI (kg/m²)	20.0 (±3.0)	24.6 (±5.3)	P=0.001
Adherence (MPR) (%)	66% (±24.6)	54% (±28.6)	P=0.43
Baseline knowledge (%)	64.7% (±13.8)	58% (±2.8)	P=0.61

#### Knowledge





#### Interim data – 6 months





#### Conclusion

- A web based adherence intervention has shown
  - Improved trends in Vitamin A,D, (but no significant changes in values at 6 months above controls)
    - Significant improvements for those with suboptimal Vitamin levels at baseline were shown
  - No changes in lung function, variation in lung function or rate of lung decline above that of controls
  - No changes in BMI above that of controls
  - Full evaluation at 1 year is now required

